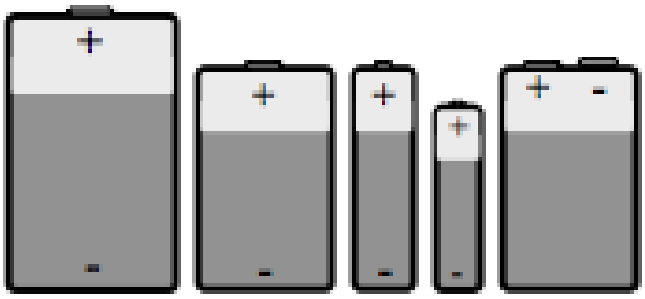
Name: _____ Per: _____

Electricity Lab 1: Batteries and Bulbs

This lab is designed to break some myths and misconceptions about batteries. In the lab you will investigate the energy provided by a number of different types of batteries. Batteries use a chemical reaction to produce electrical potential energy which in turn is provided to an electrical device (i.e. light bulb, fridge, t.v.). These electrical devices then use the electrical potential energy and produce other forms of energy. A light bulb turns electrical potential energy into light and heat.

D C AA A23 9V



Predictions:

Which battery will provide the most energy to the light bulb?		Why is this your guess?	
Which battery will provide the least amount of energy to the light bulb?		Why is this your guess?	

Experiment:

1. Connect each battery in a completed circuit with the light bulb. See *Figure 2* for help.

2. Rank the brightness of the light produced by the bulb with 1 - dimmest and 5 - brightest. Batteries can have the same brightness rating.

3. Describe the changes of the brightness of the bulb over time. Does the brightness change or remain constant? If it changes, does it change quickly? Allow each battery to illuminate the bulb for 2 minutes.

4. Look at each battery. The battery should give a voltage reading on the side. Record the voltage reading for each battery in the table below. See *Figure 3* for help.

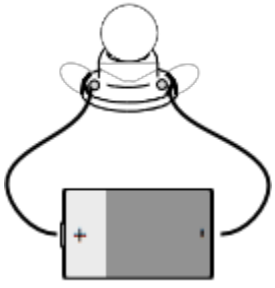


Figure 2

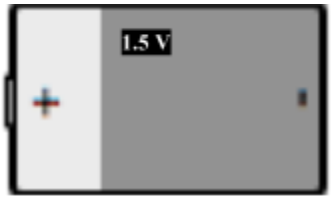


Figure 3

Name: _____ Per: _____

Battery Size	Light Observations	Change of Brightness (Doesn't Change, Changes Quickly/Slowly)	Voltage on Battery (V)
D	**1 - 2 - 3 - 4 - 5**		
C	**1 - 2 - 3 - 4 - 5**		
AA	**1 - 2 - 3 - 4 - 5**		
A23	**1 - 2 - 3 - 4 - 5**		
9 V	**1 - 2 - 3 - 4 - 5**		

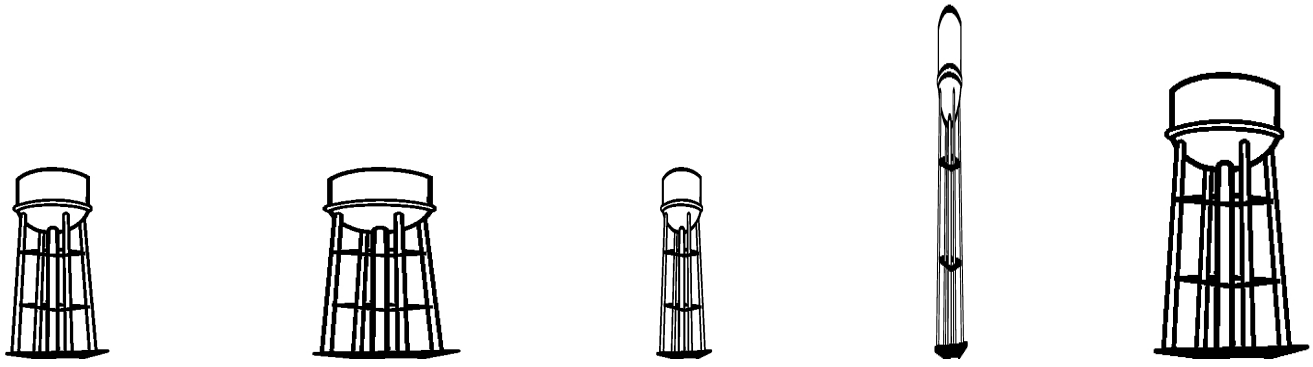
Questions:

1. Rank the batteries in terms of brightness of bulb from brightest to dimmest.

2. What relationship do you see between the brightness of the bulb and the voltage provided by the battery? (i.e. direct or inverse) Explain your choice.

Think of a battery as a water tower, a place where we store a certain amount of energy and then release it. If we drain our tank a certain amount, the pressure created at the end of the hose goes down. We can think of this as decreasing voltage, like when a flashlight gets dimmer as the batteries run down.

3. Match each battery to the water tower that best matches it.



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